NEPRA PacketEar

— Newsletter of the New England Packet Radio Association —

PacketEar #49 **August 1989**

Independence Day Message Fair

KA1RWK

On Tuesday July 4th, while most of the country was soaking up on the sun and fun, Wellesley A.R.S. members ND1Z, N1FUP, NT1L, KA1TOW, KA1RWK, W1MLU and N1CPE were supplying Amateur Radio a boost to the public from the USS Constitution at the Boston National Historic Park in Charlestown. The operation was set up as a message fair with the message being ARL FIFTY ONE THE USS CONSTITUTION, or in Anglich, 'Greetings By Amateur Radio. This message is sent as a free public service by ham radio operators here at the USS CONSTITUTION, am having a wonderful time.'

Lots of people asked how it all worked, some couldn't understand why we wanted to spend our day off doing this. Others got a good dose of what ham radio is about. Most of the visitors to the area were from out of town, which is what we really wanted. There were the locals that sent messages to neighbors, but they weren't abundant. One group on an 'Outward Bound' type sailing tour for the summer appreciated the chance to send a nice word back home that they were ok.

Surprisingly, there were no requests for international traffic. In previous operations, people invariably wanted to send a message home to places like El Salvador or Israel, we accommodated them where allowed.

We're always curious, as are all originators of third party traffic, of how things are getting through. All messages were sent with a handling code of HXG meaning "Don't spend money delivering message, reply to sender if undeliverable" but we've only received, as of this writing, two replies, one because of a typo and the other a wrong number given us by the visitor. The operation was an all packet operation with nearby Jack Callahan, N1BGG, providing us the use of his Packet BBS for the event. Three packet stations were in operation on 145.01, .05 and .07 typing messages into Jack's system for automatic forwarding all over the country.

There were 106 messages in total sent from the Constitution under the call W1TKZ, the club call of the Wellesley Amateur Radio Society.

See Tom Walsh's Notes from July Meeting and What's Scheduled for August — Page 3 —

Introduction to Packet Radio

by KA2DEW

WHY DO WE PACKET?

Packet is a computer-based communications method. This means that your communications can take advantage of the "power of the computer." For instance your packet station could be used as an excellent selective call device. You can leave your station on all of the time and when another ham calls you your station can inform you. Thus you take notice of only that activity which is directed at you. (You can also set it up to monitor other local activity.)

Of all of the modes of communications used in ham radio, packet is the only mode which inherently allows several conversations to occur in the same piece of spectrum over the same path. This means that on one frequency in the 2m band several pairs of stations can carry on conversations at the same time.

WHAT DO WE NEED TO PACKET?

There are three basic parts to a packet radio station: A radio system, a display/entry device, and a packet radio TNC. Let's cover each in turn.

The radio system looks a lot like a base station 2-meter FM setup. The only real difference is that you don't need the microphone to operate packet. Note that VHF packet is operational on 220 or 440 in some areas as well and we'll mention HF packet in another article. Like any other aspect of ham radio QRP is not as easy to use for a beginner. I recommend, if you can arrange it, that you start out with a 25-watt station and a good base station antenna. In some areas a handie talkie will perform perfectly. A neat thing about packet radio is that if you have a neighbor who leaves his station hooked up, you can easily utilize it to extend the range of your own signal!

The display/entry device can be anything from a "dumb" CRT terminal, a simple computer system like the Commodore 64 or a more elaborate computer system like a PC clone or Macintosh. The computer must have a TTL serial or RS232 interface and you must have a communications program to run on it. A computer with a disk drive will allow you to store your conversations or received text and may also let you use some of the more powerful or sophisticated packet modes. A "dumb" terminal may be found in the surplus market for $30 or so (aka flea market specials). The packet radio TNC is the real key to the operation. This "TNC", which means Terminal Node Controller, is a computer device itself that takes care of all of the dirty work involved with packet communications. The TNCs range in price from about $130 to about $400. The cheaper TNCs are just as good for VHF packet radio as the more expensive ones. The more expensive TNCs offer other digital modes such as computer-operated Morse Code, AMTOR (more about that in another issue), digital reception of rebroadcast satellite pictures, RTTY (radio Teletype), Facsimile (another issue), and even slow scan television. Consult the packeteer or ham magazine of your choice for advice on which of the models is the better choice! If you will settle for VHF packet operation only, you should not spend more than $150 for your TNC.

HOW DOES IT WORK?

Packet radio allows the digital transmission and reception of messages in small chunks called packets. At a very basic level it takes the characters in each message and translates each character as a sequence of high and low tones for transmission over a radio circuit at 1200 baud. Making some allowance for overhead characters as described below, this means that a message containing a hundred characters could be sent in about a second.

Now comes the nifty part. Each packet includes at the start of the packet "burst" the callsign of your station and the callsign of the destination station, as well as the callsigns of any intermediate stations that you are using! That means that if you choose, your station can reject any packets that are not addressed to you. Secondly each packet station only transmits for long enough to get across its short message. Thus several hams can use a single frequency for conversations without having to "listen" to each of the other conversations.

In normal packet operation you would type a carriage return after each line of text that you are sending to another station. After you

continued on page 2

National Traffic System Volunteers Needed!!

volunteers are needed to act as NTS Packet Liaison stations. Duties are to check the K1UGM PBBS on your assigned night, and handle all NTS messages pending for the Eastern Mass Section. Delivery of the messages may be accomplished by either calling the addressee yourself or relaying the message on to another station on one of the Section voice or CW nets.

Delivering messages is a very rewarding experience. It introduces non-hams to our hobby, and very often makes the addressee of the message very happy to hear from the message originator.

If you would like some more information on this public service, please send me a Packet Message or call me at 508-371-1731. I'll be glad to send you a package of instructions on traffic handling if you provide me your address.

— 73, Rusty, K1GGS
Assistant Traffic Manager for Packet

Introduction ...

continued from page 1

type the carriage return your packet station will wait for a quiet moment on the frequency and then send its message. If you have specified an intermediate station in the "path" to your friend then the intermediate station will hear its call in your message and will retransmit it, but only if the message is received perfectly and then only after the intermediate station sees the frequency as quiet (available). Then your friend's station will hear the message and send back an "acknowledgement" which is picked up and echoed by the intermediate station. When your station gets the acknowledgement it will go on and send your next line of text when you hit the next carriage return. If you have already hit the next return then your station will immediately start looking for the frequency to become quiet and will then transmit the next line. If your station waits for a preset amount of time and doesn't get an acknowledgement for its packet it will send it a second time. This will continue until the message gets through or your station has retransmitted a specified number of times, (as set by the RETRY parameter, usually 10). The form of communications where your station waits for a quiet moment and then transmits its message is called "Carrier Sense-Multiple Access" or CSMA. By the way, you can specify up to eight stations as intermediates and your message will be echoed by each in turn all the way to the destination station. Each intermediate station is called a "digipeater". Any station, including yours, may be used as a digipeater by another station, merely by specifying your station's call as an intermediate. There are some flaws associated with digipeating through many "hops" by the way, but we'll cover them later.

HOW DO WE USE IT?

Your packet TNC operates in two modes: Command mode and Converse mode. In Command mode you can instruct your TNC about its operation, its callsign, RETRY value or whether it MONITORs the channel or listens only to messages with its callsign. Additionally you can command your TNC to "connect" to another station. It is in the connect command that you specify the destination callsign and the callsigns of any intermediate stations. In Converse mode anything you type will be sent over the air when you type a carriage return. If you are connected to another station the TNC will send the message and wait for an acknowledgement or retry as described above. If you are NOT connected to another station your TNC will send the message as soon as the frequency clears and will not wait for an acknowledgement. This is useful if there are other stations MONITORing the frequency. This is how you may call for any contacts (aka calling cq). In command mode you can tell your TNC to use a digipeater during these unconnected or "UNPROTO" transmissions.

ANYTHING ELSE?

Glad you asked. There are many ways to play with packet. Some hams set up automated stations which allow connection by other hams. You may then connect to an automated station and command it to perform many fun and useful functions. Among the most common sort of automated station is the packet bulletin board or PBBS, also known as a "mailbox". These stations allow a packeteer to connect up and send and read messages. Average messages seem to be about 2000 characters long but are sometimes 10,000 or more. The mailbox lets you look at any messages that are listed as bulletins. You can send messages to other stations and you can read messages that are addressed to you. You can also send bulletins.

HERE COMES THE NEAT PART!

One of the most useful functions of the modern day mailbox is that all of them exchange messages with each other. This means that you can packet with your local mailbox and send or receive messages and bulletins with other packeteers anywhere else on the continent and many other countries overseas! Generally it takes 24 hours or less to get a message from your local mailbox to any other mailbox in North America. And all you have to do to make it work for you is to establish an address or "home mailbox" that you will check in on to get your mail. You don't have to know or care when the station you are conversing with gets on the air to get his messages. All you need to know is his home mailbox's callsign.

By the way, one of the primary developers of packet mailboxes is W0RLI, Hank, who was also one of NEPRA's founders. Hank lived in New England until a few years ago when he moved to the west coast. Hank still keeps an eye on us and any packeteer can pester Hank by sending a message to him at his mailbox!! (Look out Hank!)

Another useful automated station is called DOSgate. This is a program written by NM1D, Hank, who described it in last month's issue of the *PacketEar*. This program is run on a IBM PC clone and allows a packeteer to connect up and use the PC as if it were his own station. You can run programs and even create files. It also serves as a packet mailbox. Some of the programs that are on NM1D's system are extremely useful, especially if you don't have your own home computer.

Yet another device is called the CROWD node which lets us have round table conversations with other hams elsewhere in the region. I have had many a conversation with ham radio friends in places such as Utica, New York and Charlettetown, Prince Edward Island and Boston, Massachusetts from my home in Goffstown, New Hampshire, entirely on VHF and all at the same time! Each of us could read everything each of the other stations typed. And all of this was going on over frequencies that were shared with many other operators.

Another interesting operation going on in packet today is run in New England by the Yankee Clipper Contest Club (YCCC). The YCCC operates a region wide information system for DX spotting. The way you use this is to packet with a local contact point (there are many) all the time while you are operating your HF station. Whenever you work a rare one on HF you can type a note to all of the other hams who are currently "on the net". This can include 50 or more stations at once. Each message you type can be routed to all of the other packet stations (that are checked in) at once or you can select to type to an individual station. You in turn will see all of the DX spotting reports typed by the other hams that are tied in.

FUTURE ARTICLES

In later articles we'll describe what we call "packet networking," HF packet, TCP/IP, BBS/mailbox operation (including setting up your own), field day operation on packet, TNC selection and other interesting topics. If you have a topic on which you'd like to contribute an article or one you'd like us to cover, drop us a note at our PO box.

Attention Packeteers!

Plenty of Room for Your News and Pictures!

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The Weekly Packet Net meets on Friday @ 8:00 pm on the 146.625 (-600) Haverhill machine.

v3.11 06-20-89 KA2DEW

Greetings Packeteer. The year 1988 has shown us some incredible advances, not in the technology in our hobby so much as in the organization of our efforts. For the first time we have a packet network that may have a future. This is by no means the first time that we have been able to packet for long distances (several hundred miles). What we have here though is a path of advancement of our network. In the past a new path would open up for a New England packeteer to talk to, say NYC, and within one or two weeks the path became unusable, merely due to loading! That is, once it became good, it became bad! It is the intention of N.E.P.R.A., N.Y.S.P.A. that we create a dynamic network that can be upgraded in a smooth and nondestructive manner. To achieve this we have set down some very basic rules (See the front of this document). We believe that the packet radio public will help us in keeping to these rules because we have shown and will continue to show that our rules make sense!

If you are interested in adding to the system: I recommend that you contact Herb, Tadd, Dana, Kevin or the sysop of the node that is closest to you (use the INFO command to check) or that you go to a meeting of one of the packet organizations and talk to the other people who are involved.

If you are interested in using the system: I consider hacking the network a good thing. Learn all that you can. This is half of the fun! Take the network as far as you can. The theory on this is that the more packeteers we have that can use and understand the network, the more progress we will see in the future and the more fun we will all have. At all times, take the other packeteer by the hand and help him in understanding how to use the network. Please note: If you find that a path in the network is not responding quickly it is probably overloaded. Note this and try avoiding that path during prime time. Your cooperation and support (and input) is appreciated.

Short term objectives:

a>Create redundant links from Boston to Buffalo
b>Create HTS free links in place of existing shared access channels for backbones.
c>Promote emergency power in existing nodes.
d>Experiment with and install higher speed backbone links.
e>Play radio!

Long term objectives:

a>Participate in hidden transmitter free backbone from New Brunswick to Indiana and from Ontario to Maryland.

Clubs:

EBN Eastnet Backbone Network.

This is a consortium of hams who formed a packet network on the east coast. This group is responsible for setting up a packet backbone which runs from Mt. Greylock to Long Island and Maryland through Pennsylvania.

NEPRA New England Packet Radio Association

This club meets monthly at the Honeywell Building in Billerica just off the Concord Road exit from Rt. 3. The meetings are at 7:30PM on the second Thursday of each month. Send to N1BGG @ N1BGG for more information.

This club serves Mass, New Hampshire, southern Maine, Rhode Island and northern Connecticut.

NYSPA New York State Packet Association

This is a consortium of BBS ops, node owners, site managers, network coordinators and interrested individuals in New York State. Their common goal is to provide a HTS free statewide backbone network. For further information send to WA2WNI @ WA2PVV.

Networking Contacts:

--Tadd Torborg, KA2DEW - NEPRA network director
603-882-1455 before 11:30 PM or @ WB1DSW or KA2DEW on 145.07 off the SNH node.

--Herb Belin, WA1TPP - Western MA/CT operations
Contact at WA1TPP off HERB wireline link at BERK node or at Herb's BBS, WA1TPP-2 (personal BBS) off HERB node or @ K1MEA.

--Dana Jonas, WA2WNI -- NYS RACES packet coordinator, Albany NY
Contact @ WA2PVV or on 144.93 off the ALB144 node.

--Kevin Wright, WA2VAM -- Assistant NYS RACES packet coordinator, Cortland NY. Contact @ WB2ACV or write to Keven Wright, POB 11, East Freetown, NY 13055

Node Operation:

Nordlink/TheNET software by DF2AU
NET/ROM by Software 2000

To use a network node, you connect to it. As soon as you get a *** CONNECT message back you can type a command which the network node will interpret. The commands available on a user port are Ident, Nodes, Routes, User, Connect, CQ, Parm and Sysop. Only the first character of each command (except CQ) need by typed. Some of the commands require additional information which is typed on the same line as the command.

Nodes: This command is used to ask the node about the other nodes on the network. Information that may be gotten includes all of the nodes that this node knows about, the user nodes that this node knows about or the next node in the path that this node will use to connect to another node. Usage- Type N <return>. The network node will return with a list of all of the user nodes that it knows about. Type N * <return>. The network node will return with a list of all of the nodes, user or hidden, that it knows about. A hidden node is one whose name begins with a # sign and is used as a backbone port with no user services. Type N nodename <return>. The network will return with a table of callsigns for the neighboring nodes which are the paths that the node might take to get to the nodename specified. Each line of the returned table has a > if the path is in use, the callsign of the path, the quality of the path and a 1 if the path is a serial port to another TNC in the same rack or a 0 if the path is over the air. Note that the quality returned is calculated based on sysop entered values and not on the actual radio signal quality or failure rate.

Routes: This command, entered as R <return> will return a table of adjacent nodes (neighbors). All of the neighbors will be listed. On each line of the table is a > if the path is in use, the callsign of the neighbor node, the quality of the path, and the number of nodes the neighbor node is telling this network node about. At the end of each line, a I would indicate that this neighbor has been "locked in" by the sysop. Otherwise the nodes listed were detected by this node via automatic routing broadcasts which occur about once per hour.

User: This command, entered as U <return>, will return a list of the users of the node. This does not include stations who are connected through the node. A user connecting from SNH to SRTOGA will not show on CENTMA (not even on the backbone nodes), only on SNH and SRTOGA.

Parm: This command shows the current numerical values set up as parameters for the node. A NordLink or NET/ROM operations manual will be required to make any sense out of this.

Ident: This command will return with up to 160 characters of text which contains information programmed by the sysop. This should include the node's location, its uses, what BBSs are available and where to go for more information. If you are playing around looking through the network you should use this command at each node.

Connect: This command is used to connect to another node in the network or to a user available from the node you are connected to. Usage is C callsign <return> just like the command for a TNC1 or TNC2. You can, with this command, connect to another node using the nodename, i.e. C WMA <return>. For style and good amateur practice we recommend that you use the node's callsign for your initial connect to your local user node. Note that this command will not work on hidden nodes in the NEPRA or NYSPA systems.

Sysop: This command followed by the password allows the sysop to make changes to the routes table or parameters.

Node notes:

The callsign that a node uses for a user who is exitting a node is the entry callsign subtracted from 15. Thus if the user is KA2DEW-0 and he connects to a node, when he connects from any node in the network he will be seen as KA2DEW-15. KA2DEW-2 becomes KA2DEW-13 etc...

Crowd nodes:

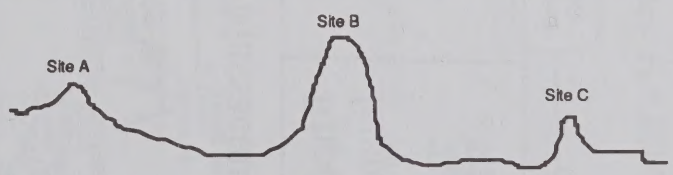
Some of the nodes in the network sport a capability called CROWD. This feature allows an operator to join a "crowd" with several other hams to have a multi-way conversation. Each ham sees every other ham's messages preceded by the callsign. To use a crowd node you must connect to a node which has one, then do a C CROWD *carriage return* and once you get a connect back you should type an extra *carriage return*. You will then get a message back telling you to type "/H for help". Once you type /H and a *carriage return* you will get a full page of text describing the functions of a CROWD node. From now on, anything you type will be printed at each other ham's location.

You may have to schedule contacts with other hams or monitor the CROWD node for an hour or so to scare up a conversation. I use it when I get into a conversation with more than one ham at a time from home and then ask everybody to migrate to the CROWD node. Currently there are CROWD nodes at UTICA, ALB144, BERK4, MTM, SNH and CENTNH.

Network Node Hardware:

Each network site consists of 2 or more TNC2 clones tied together by the serial port on each TNC. If there are more than 2 TNCs a diode matrix box is used to patch the 4 lines from each TNC to each of the other TNCs. Connected to each TNC at the radio/audio port is a radio. Each radio is on a different frequency. The radios shouldn't interfere with each other. Each site has a backbone connect port to tie it into the network. Each site has a user port to allow users, both human and computer server (i.e. DOSgate, Unix, BBS etc...) to talk into the network or get connected to from the network. It is the considered opinion of the network designer that a site with no user port is probably bad. This would only invite abuse of the backbone by users.

Many sites have 4 or more TNCs. Each link in the backbone is on a different frequency to avoid hidden transmitter syndrome and therefore each link at each site needs a separate TNC/node.



Hidden Transmitter Syndrome:

This is the bane of most earlier packet networks. A system with 3 sites:Site A and Site C are far enough apart that they don't hear each other at all. Site A and site C are near cities. Each has a BBS or 2. Site A has traffic to go to site C and site C has traffic to go to site A or B. Site A will transmit when it doesn't hear anything. Site C will do the same. Site B hears both A and C. If C is transmitting and A decides to transmit, both messages are lost. If A is waiting for a reply from B and site C is talking, then site A has to wait. If C is talking for too long, site A will retry, thus trashing the message C is sending to B. The upshot of this is that if the A to B link was on a different frequency than the B to C link, the observed performance increase is greater than 5 times, regardless of the baud rate! A hidden transmitter is a station that can be heard by one or more stations on a frequency but can not hear ALL of the stations on the frequency. It is the policy of NYSPRA and NEPRA to stay away from hidden transmitters on any new paths that we are developing.

Support:

We would like to take the time (and space!) to give our thanks and appreciation to the clubs and individuals who have helped our cause! Thankyou!

MTARA, NOBARC, Saratoga Co RACES, PenBay ARC, GURU, CVRC, Dutchess Co RACES, FLRGOBL etc etc...!

New England packet network user port map
rev 1.04 6/20/89

by KA2DEW

Duplicate at will!

This map shows TheNET and Net/rom nodes which are connected to each other on 50mhz or 220 and above. This map does not show Servers, Users, KA nodes or 2 meter single port nodes.

BBScall	nodename	nodecall	
KA1PEP	MBOS2	:N1CSI-2	
WB1DSW-1	DSWBBS	:WB1DSW-12	
N1BGG	MBOS2	:N1CSI-2	
WA2PVV	ALB144	:WA2WNI-1	
K1MEA-4	SKI	:K1MEA-12	
WA2UMX	SRTGA2	:KA2FQE-13	
N1API	MTM	:K1MEA-1	
KB4N-4	SNHUHF	:K1TR-2	
WA2YVL-4	MWU	:W1HJF-4	
WA1OJB-4	MWU	:W1HJF-4	
WA2RKN-2	ENY	:WB2KMY-1	
K1UGM	MBOS4	:N1CSI-4	
WA1ZDA-5	PENBAY	:WA1ZDA-1	
WB2COY	CLV	:N2CJ-1	
W1NY-2	BERK2	:WA1TPP-13	
W1AW-4	#NWCT7	:WA1UQC-8	
WA1FHB	SWNH	:KA1BBG-1 *	
N1BPU-1	MBOS1	:N1CSI-1	MA eoc
WA1WOK-2	SNH	:K1TR-1	NH eoc
KB2CS	ALB144	:WA2WNI-1	NY eoc

Maine

MW bb
W1HJF
Mt. Washington, NH
W1HJF-1 :MWV 145.01
W1HJF-4 :MWU 445.6
connects with Quebec on MWV. Also look for OTTSAT/ CGYSAT off PLB (accessible from MWV).

LEW
WA2YVL
Streaked Mtn, ME
WA2YVL-3 :lew3 223.42
WA2YVL-7 :lew7 445.6 bbs only
local bbs WA2YVL-4 off lew7

Vermont

CENTNH bb
K1BKE
Concord, NH
K1BKE :CENTNH 144.99
CROWD node: To connect to the CROWD, connect to CENTNH, then connect to CROWD, then hit a <carriage return>

SRTOGA
KA2FQE
Saratoga, NY
KA2FQE :SRTOGA 145.01
KA2FQE-12:SRTGA2 221.17 bbs only

New Hampshire

NHARA1/2
KA1OU
Goffstown, NH
KA1OU-2 :NHARA1 145.09
KA1OU-3 :NHARA2 223.58 on the air soon

SNH
K1TR
Windham, NH
K1TR-1 :SNU 145.07
K1TR-2 :SNHUHF 445.6 changing to 441.025
CROWD node: To connect to the CROWD, connect to SNH or SNHUHF, then connect to CROWD, then hit a <carriage return>
NH state EOC WA1WOK-2 off SNH

GRFTON bb
K2CBA
E. Grafton, NY
K2CBA-1 :GRFTON 144.99

WMA bb
K1FFK
Mt. Greylock, Ma
K1FFK :WMA 145.05
K1FFK-12 :#WMA2 221.17 bbs only

ALB bb
WA2WNI
W. Grafton, NY
WA2WNI-1 :ALB144 144.93
WA2WNI-2 :ALB220 223.58
CROWD node: Connect to ALB144 or ALB220 then connect to CROWD, then hit a <carriage return>
local bbs WA2PVV off ALB144
NYstate EOC KB2CS off ALB144

MTM
K1MEA
Mt. Tom, MA
K1MEA-1 :MTM 145.05 primary user port
K1MEA-12 :SKI 221.17
CROWD node: Connect to MTM or SKI then connect to CROWD, then hit a <carriage return>
local bbs - K1MEA-4 off SKI

CENTMA
KA1OXQ
Oakham, MA
KA1OXQ-1 :CENTMA 145.07

MBOS
N1CSI
Wakefield, MA
N1CSI-1 :MBOS1 145.01 primary user port
N1CSI-2 :MBOS2 221.11
N1CSI-3 :MBOS3 145.03 to .03 network
N1CSI-4 :MBOS4 445.6
MA state EOC N1BPU-1 off MBOS1

New York

KNDRHK
KB2CCC
Kinderhook, NY
KB2CCC-1 :KNDRHK 145.07
WA2WNI-10:DANA wire LAN

BERK bb
WA1TPP
Granville, MA
WA1TPP-9 :BERK4 144.99 primary user port
WA1TPP-12:BERK1 145.07
WA1TPP-13:BERK2 221.11
WA1TPP-10:HERB wire LAN
CROWD node: Connect to BERK1, 2 or 4 then connect to CROWD, then hit a <carriage return>

SPNGFD
W1NY
Springfield, MA
W1NY-1 :SPRFLD 145.01
local bbs - W1NY-4

Massachusetts

CLV
N2CJ
Lagrangeville, NY
N2CJ-1 :CLV 145.09

ENY
WB2KMY
Mt. Beacon NY
WB2KMY-1 :ENY 145.01
WB2KMY-2 :ENYLAN 145.59 primary use port

NWCT
WA1UQC
Birlington, CT
WA1UQC-7 :ICRC07 145.07
WA1UQC-8 :#ICRC7 221.11 bbs only

Rhode Island

PVD bb
W1XJ
Providence, RI
W1XJ-1 :PVD 221.11

Connecticut

New England packet network backbone map
rev 3.36 7/02/89 by KA2DEW

Duplicate at will!

This map shows TheNET and Net/rom nodes which are connected to each other on 50mhz or 220 and above. This map does not show Servers, Users, KA nodes or 2 meter single port nodes.

BBScall	nodename	nodecall
WA1WOK-2	SNH	:K1TR-1
KA1PEP	SNH	:K1TR-1
WB1DSW-1	DSWBBS	:WB1DSW-12
N1BGG	MBOS1	:N1CSI-1
WA2PVV	ALB144	:WA2WNI-1
K1MEA-4	MTM	:K1MEA-1
WA2UMX	SRTGA2	:KA2FQE-13
N1API	MTM	:K1MEA-1
KB4N-4	SNHUHF	:K1TR-2
WA2YVL-4	MWU	:W1HJF-4
WA1OJB-4	MWU	:W1HJF-4
WA2RKN-2	ENY	:WB2KMY-1
K1UGM	MBOS4	:N1CSI-4
WA1ZDA-5	PENBAY	:WA1ZDA-1
WB2COY	CLV	:N2CJ-1
W1NY-2	BERK2	:WA1TPP-13
W1AW-4	#NWCT7	:WA1UQC-8
WA1FEB	SWNH	:KA1BBG-1 *
N1BPU-1	MBOS1	:N1CSI-1

BBS information listed here shows network connect info for each BBS. Some BBSs are for local use only and will refuse network connects to non-BBS callsigns.

Network Developer Items:
>A protected backbone is a path between two or more nodes where there are no hidden transmitters. Stations not assigned to a backbone should not attempt over the air connects to a backbone node as this could degrade backbone performance.
>Only protected backbone nodes use the # symbol in their names.
>An unprotected backbone is one where hidden transmitters have been allowed.
>User nodes accept connects from man or machine.
>Protected backbone nodes accept connects for diagnostic purposes but are unusable for re-connect.
>Digipeating through user nodes is reasonable if retries are unlikely to occur as the timing on TheNET nodes used as single frequency nodes is poor.
>We don't want to add new nodes to an unprotected backbone except where it is neccessary to insure redundancy.
>Due to the fact that most users use 2 meters for packet and the rarity of 2 meter spectrum we should at all times use higher frequencies to access the network if possible. It is much cheaper to have 1 BBS connect to the network on 220 than to have 20 users do so.

Maine

MW bb
W1HJF
Mt. Washington, NH

LEW
WA2YVL
Streaked Mtn, ME

445.6

Vermont

CENTNH bb
K1BKE
Concord, NH

445.1

NHARA1/2
KA1OU
Goffstown, NH

New Hampshire

KNGSTN
WB1DSW
Kingston, NH

We plan to use 445.6 for a link from Boston (MBOS) up to Mt. Washington. SNH and CENTNH will link on 445.1.

431.1

SNH
K1TR
Windham, NH

SRTOGA
KA2FQE
Saratoga, NY

221.17

445.65

SWNH
KA1BBG
Keene, NH

220.55

441.075

Mt. Greylock took a lightening strike on June 3 and is off of 221.17 until further notice.

WMA bb
K1PFK
Mt. Greylock, Ma

NCMA site is operational. Backbones are being added presently. 445.1 will be used between MTM and BERK.

NCMA
N1EZD
Templeton, MA

220.57

GRFTON bb
K2CBA
E. Grafton, NY

To SCH and points west

ALB bb
WA2WNI
W. Grafton, NY

New York

See New York Backbone Map

221.03

51.93

KNDRHK
KB2CCC
Kinderhook, NY

441.075

CLV
N2CJ
Lagrangeville, NY

145.09

To ENY node and pts south

MTM
K1MEA
Mt. Tom, MA

223.56

CENTMA
KA1OXQ
Oakham, MA

223.4

FRMHAM
WA1YDL
Framingham, MA

MBOS
N1CSI
Wakefield, MA

BERK bb
WA1TPP
Granville, MA

445.1

SPNGFD
W1NY
Springfield, MA

Massachusetts

NWCT
WA1UQC
Birlington, CT

221.11

Rhode Island

ECARA
K1MUJ
????, CT

PVD bb
W1XJ
Providence, RI

Connecticut

Current paths of expansion include a new node in Kingston NH called KNGSTN which will talk to a new node in southern Maine. We will also probably have a link from Albany to Syracuse running this summer. It doesn't seem unlikely that we can meet our goal of rapid communications from Indiana all the way to New Brunswick Canada in a year.

USER PORT INFO:			
site	freq.	node	callsign
SRTOGA	145.01 -	SRTOGA:	KA2FQE
	221.17 -	SRTGA2:	KA2FQE-13
ALB	144.93 -	ALB144:	WA2WNI-1
	223.58 -	ALB220:	WA2WNI-2
GRFTON	144.99 -	GRFTON:	K2CBA-1
KNDRHK	145.07 -	KNDRHK:	KB2CCC-1 *
ENY	145.59 -	ENYLAN:	WA2KMY-2
	145.01 -	ENY :	WA2KMY-1
CLV	145.09 -	CLV :	N2CJ-1
WMA	145.05 -	WMA :	K1FFK
BERK	145.07 -	BERK1 :	WA1TPP-12
	221.11 -	BERK2 :	WA1TPP-13
	144.99 -	BERK4 :	WA1TPP-9
MTM	145.05 -	MTM :	K1MEA-1
	221.17 -	SKI :	K1MEA-12
SPRFLD	145.01 -	SPRFLD:	W1NY-1
CENTMA	145.07 -	CENTMA:	KA1OXQ-1
SWNH	145.05 -	SWNH :	KA1BBG-1 *
NCMA	145.05 -	NCMA :	N1EZD *
CENTNH	144.99 -	CENTNH:	K1BKE-1
MW	145.01 -	MWV :	W1HJF-1
	145.60 -	MWU :	W1HJF-4
NHARA	145.09 -	NHARA1:	KA1OU-2
	223.58 -	NHARA2:	KA1OU-3 *
SNH	145.07 -	SNH :	K1TR-1
	445.6 -	SNHUHF:	K1TR-2 ++
MBOS	145.01 -	MBOS1 :	N1CSI-1
	221.11 -	MBOS2 :	N1CSI-2
	145.03 -	MBOS3 :	N1CSI-3
	445.60 -	MBOS4 :	N1CSI-4
FRMHAM	144.99 -	FRMHAM:	WA1YDL-1 *
LEW	223.42 -	LEW3 :	WA2YVL-3

++= changing freq to 441.025 soon
* = planned user port

FRMHAM WA1YDL Framingham, MA = Node we expect to have linked in soon.

= soon to be a backbone

bb = emergency power

* = CROWD node (mini conference) available at this site.

Networking Rules:
1> No hidden transmitters on backbones.
2> No nodes of poor reliability pass into backbone.
3> No single port nodes.
4> Path redundancy to all sites is necessary.

Bold line = protected backbone (no hidden transmitters)

Comments, Corrections, new info: call me at 603-882-1455 up until 11:30 PM.
KA2DEW - Tadd Torborg, Nashua, N.H. @WB1DSW for keyboard to keyboard my station is off of SNH:K1TR-1
USmail at 7 Jefferson St. Nashua NH 03060

New York packet network backbone map
rev 1.07 7/08/89

by KA2DEW

Duplicate at will!

BBScall	nodename:nodecall
WA2PVV	ALB144:WA2WNI-1
WA2UMX	SRTGA2:KA2FQE-13
WA2RKH-2	ENY :WB2KMY-1
WB2COY	CLV :N2CJ-1
WB2ACV	??
KC3BQ	AUB220:W2BCH-1
WA2TVE-4	UTICA :N2GFN

BBS information listed here shows network connect info for each BBS. Some BBSs are for local use only and will refuse network connects to non-BBS callsigns.

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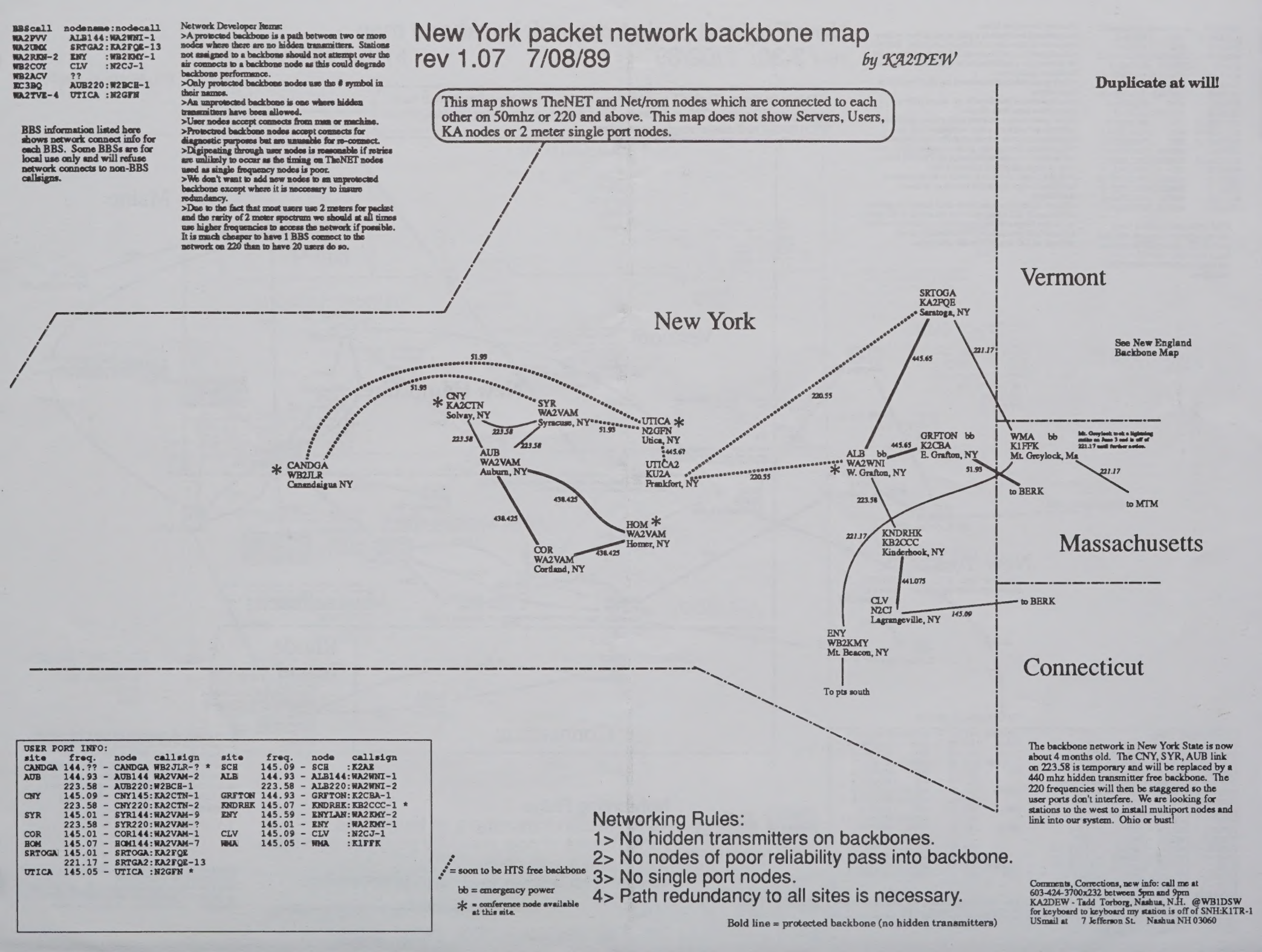
>We don't want to add new nodes to an unprotected backbone except where it is necessary to insure redundancy.
>Due to the fact that most users use 2 meters for packet and the rarity of 2 meter spectrum we should at all times use higher frequencies to access the network if possible. It is much cheaper to have 1 BBS connect to the network on 220 than to have 20 users do so.

This map shows TheNET and Net/rom nodes which are connected to each other on 50mhz or 220 and above. This map does not show Servers, Users, KA nodes or 2 meter single port nodes.



USER PORT INFO:							
site	freq.	node	callsign	site	freq.	node	callsign
CANDGA	144.?? -	CANDGA	WB2JLR-? *	SCH	145.09 -	SCH	:K2AE
AUB	144.93 -	AUB144	WA2VAM-2	ALB	144.93 -	ALB144	:WA2WNI-1
	223.58 -	AUB220	:W2BCH-1		223.58 -	ALB220	:WA2WNI-2
CNY	145.09 -	CNY145	:KA2CTN-1	GRFTON	144.93 -	GRFTON	:K2CBA-1
	223.58 -	CNY220	:KA2CTN-2	KNDRHK	145.07 -	KNDRHK	:KB2CCC-1 *
SYR	145.01 -	SYR144	:WA2VAM-9	ENY	145.59 -	ENYLAN	:WA2KMY-2
	223.58 -	SYR220	:WA2VAM-?		145.01 -	ENY	:WA2KMY-1
COR	145.01 -	COR144	:WA2VAM-1	CLV	145.09 -	CLV	:N2CJ-1
HOM	145.07 -	HOM144	:WA2VAM-7	WMA	145.05 -	WMA	:K1FFK
SRTOGA	145.01 -	SRTOGA	:KA2FQE				
	221.17 -	SRTGA2	:KA2FQE-13				
UTICA	145.05 -	UTICA	:N2GFN *				

= soon to be HTS free backbone

bb = emergency power

* = conference node available at this site.

Bold line = protected backbone (no hidden transmitters)

Networking Rules:

1> No hidden transmitters on backbones.
2> No nodes of poor reliability pass into backbone.
3> No single port nodes.
4> Path redundancy to all sites is necessary.

The backbone network in New York State is now about 4 months old. The CNY, SYR, AUB link on 223.58 is temporary and will be replaced by a 440 mhz hidden transmitter free backbone. The 220 frequencies will then be staggered so the user ports don't interfere. We are looking for stations to the west to install multiport nodes and link into our system. Ohio or bust!

Comments, Corrections, new info: call me at
603-424-3700x232 between 5pm and 9pm
KA2DEW - Tadd Torborg, Nashua, N.H. @WB1DSW
for keyboard to keyboard my station is off of SNH:K1TR-1
USmail at 7 Jefferson St. Nashua NH 03060

*** CONNECTED TO USERS

Tom Walsh, K1TW
Chair, NEPRA User Committee

The first User Session has come and gone. It was encouraging to see a large turnout of interested users at the July 13 meeting. Mort, KA1IU, deserves our hearty congratulations on a job well done for running the first user session, and answering many questions from the floor. At the next meeting we plan not only to continue but to expand the user session to a full hour.

USER HOUR

The next NEPRA meeting will take place on Thursday, August 10. Packet Users are again invited and encouraged to come, beginning at 7:00 for a one-hour user session. There will be several different activities planned for the packet user between 7 and 8 p.m. Throughout the hour, a packet radio station will be operating for users to observe and use. We would like people to feel free during the user session to visit the packet station in small groups to see what packet radio is all about, and ask questions and try it out. The station will be located away from the main meeting area so that we can simultaneously offer speakers who will conduct talks and question/answer sessions of interest to the user.

At the next user session, Tadd KA2DEW will present a 20 minute introductory talk on packet radio and describe the packet demo set up at the meeting. Following Tadd's talk, Mort KA1IU will again host an interactive question/answer session for the users. In addition, Mort also plans to talk about buying packet radio equipment. And of course, throughout the hour, users are welcome to visit the packet radio demonstration station.

BUSINESS MEETING

Around 8 PM, there will be a ten minute break, followed by the NEPRA business meeting. Interested users are invited to stay for the business meeting. We hope you enjoy the evening. Your comments on the program are always welcome.

USER COMMITTEE ACTIVITIES

I'd like to take a moment and describe the activities of the NEPRA User Committee over the past month. This committee was formed at the June NEPRA meeting in response to the desire of NEPRA members to expand our user support. I agreed to act as the chairman of the committee. Other members include Tadd KA2DEW, Mort KA1IU, Elaine N1GTB, Rusty K1GGS, and Tom W1VGZ. Thus far we have held small meetings between the monthly NEPRA meetings. The committee welcomes any other interested users who would like to take an active role in shaping NEPRA's User Support.

NEWSLETTER SUPPORT

The User Committee is actively involved in two projects right now. Planning the User Session for future NEPRA meetings, and planning the monthly NEPRA newsletter. I've already mentioned the User Session, so let me tell you about the newsletter. It is the committee's intent to assemble and edit a monthly newsletter. Although, ultimately we expect a volunteer editor to be identified, in the interim the committee will act as the editor. As I mentioned last month, we view a newsletter as a crucial part of the New England Packet Radio Association's monthly activity. We will try to include interesting and useful information to help make your packet radio operation that much more enjoyable. Over the next few months we hope to assemble lots of helpful information, such as packet maps, packet BBS lists, and news. Articles can be sent to the NEPRA Post Office Box address, or to NEPRA @ WB1DSW, or W1TMO @ N1BGG. Users are also encouraged to send in questions that you would like to see answered in the newsletter, and suggestions for articles as well as articles themselves. Your contributions, large or small, will help make the newsletter special every month.

*** DISCONNECTED

WHAT IS THE NATIONAL TRAFFIC SYSTEM?

By John King, KA2F, Section Traffic Manager
Northern New Jersey, Hudson Division

The National Traffic System (NTS) is an American Radio Relay League sponsored public service organization of amateur radio operators working in a fast, efficient, and reliable method of handling third party messages via ham radio.

NTS GOALS

Providing timely and reliable movement of record message traffic from origin to destination as a free service to the amateur community and the general public.

Training of amateur operators in the processing of third party messages in directed nets to promote and continue the existence of a reserve of well-trained radio communications personnel.

Supplying communications during states of emergency on behalf of ARES and RACES especially for medium and long range record messages.

NTS PARTICIPATION REQUIREMENTS

The National Traffic System operates daily. Sometime each day there will be one or several NTS nets to suit individual schedules and inclinations. If you can spend one regular period of time (your choice) each week then the NTS can provide you an opportunity to serve. ARRL membership (with appointment as an Official Relay Station) is encouraged, but is not a requirement to participate as a traffic handler in the National Traffic System.

YOU ARE ELIGIBLE TO JOIN NTS IF . . .

. . . you possess a valid amateur radio license (Novice through Extra) allowing operator privileges in the band and mode of the net.

. . . you have a radio station capable of effective operation on the net.

. . . you are able to operate in the mode(s) of the net: NTS nets operate CW (slow, medium, fast to suit your ability), Voice (SSB and FM), RTTY, and Packet Radio modes.

BENEFITS OF PARTICIPATION IN NTS NETS

- Add to the pleasure of your hobby in amateur radio by mastery of new and challenging skills in radio communications.
- Join a group of dedicated men and women all sharing in the fellowship of valuable and enjoyable public service work.
- Learn through on-the-air nets, publications, and in-person seminars and meetings how to operate in a disciplined net where the close-knit organization and rules of operation contribute to a new dimension of radio enjoyment.
- Know that you are providing the best possible public relations for amateur radio when messages are delivered with the personal touch of a ham who cares.
- Receive awards and recognition from the amateur community and the thanks of the general public—incentives for regular participation in traffic activities.
- Have fun, whenever you join an NTS net!

For an Up-to-Date list of NTS and other traffic nets in your area, consult your monthly issue of QST in the Station Activities portion of the magazine. This section of the magazine generally lists all currently known nets active in a particular section, in all ARRL Sections. Look at the nets listed in the sections adjacent to your own. You may be able to check into one of those nets also.

— KA2F @ WB2HBZ

Attention Packeteers!

Plenty of Room for Your News and Pictures!

Carry the Message Back

Bill Clapp-Hansen, KB1YJ, Stratham, N.H.

I just read the March *PacketEar*. As usual, I am learning more about packet radio and the potential it holds for our hobby. It is both fascinating and exciting as a technology and as a facet of amateur radio. To the extent that it is new and complex I want to remind us of the role of "Elmer" we all have the chance to play.

It was only two years ago I really heard of packet radio. Sure I had read of it in QST, but I did not begin to understand until Bob, W1IMB, transported his Apple and TNC-1 100 miles to The Port City Radio Club in Portsmouth, N.H. to give an introductory presentation. Against all odds, the system worked. Twenty-plus hams were initiated. The seeds were planted. A scant two years later 65% of the group have packet stations. Over the two-year period the seeds have been nurtured. Herb, WB1DSW, has come to the club to introduce the gateway and discuss his BBS. Bob, W1IMB, has returned with his new DOS system and hard disk and the PK232. Talk of packet has shifted from the how-do-you-connect and digi-ing to how-to-send-messages via NTS, and Net/Rom. The interest is growing along with the system.

To foster the interest and improve the system we need to encourage proper use and give the newcomers a lot of help. It is not a simple conceptual leap for some folks to take a PC; connect it to a TNC; connect it to a radio; connect it to a BBS; connect it to a gateway; connect it to another radio which then connects to another BBS which reverses the process. While the mode of packet radio is magnetic to many of us, it is intimidating to many others. Packet offers a great opportunity to offer real assistance to fellow hams. As usage continues and the system grows we will want people capable of using it properly. Simply put, we have to train them.

Not all hams are computer literate. Some basics may be required. If we can expose people to the mode and system while limiting the buzz words that become second nature to us all we can develop that kernel of interest that pulls at us to learn more. Most of us have an "Elmer" lurking in our past—someone who made a difference and made the effort. Share your enthusiasm. There are a lot of people out there ready to respond. But remember packet novices often need information at a steady 5 wpm, not at 1200 baud.

Personal thanks to Herb, W1IMB; Bob, WB1DSW and the NEPRA Beginners Packet Net (ed. note. Fridays at 8:00 pm local on the 162.50 machine in Haverhill).

Attention Packeteers!

Plenty of Room for Your News and Pictures!

NEPRA **PacketEar**

New England Packet Radio Association
P.O. Box 208
East Kingston, NH 03827

MEMBERSHIP in NEPRA is open to all amateurs with an interest in packet radio. Annual dues are $15. The expiration date for current members is given on your mailing label. If the date has been circled in red, the expiration date is imminent. The address for new memberships or renewals is given above.

NEPRA MEETINGS are held at the Bull (fomer Honeywell) plant cafeteria in Billerica at 7:30 PM on the Second Thursday of each month. Take Route 3 to exit 27, Concord Road. Proceed West a couple of hundred yards and you will see a sign and entrance to Bull on the left. Parking and entrance are at the rear of the building. Talk-in is available on 147.12 MHz.

NEXT MEETING — AUGUST 10!

FIRST CLASS MAIL